

Claims

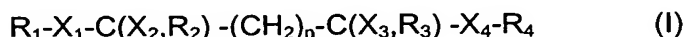
1. A process for preparing prepolymers containing isocyanate groups by reacting
- 5 a) diisocyanates with
- b) compounds having at least two hydrogen atoms which are reactive toward isocyanate groups in the presence of
- 10 c) catalysts, and subsequently separating off the excess monomeric diisocyanates,
- wherein
- 15 the diisocyanates a) used are unsymmetrical diisocyanates and the catalysts c) used are organometallic catalysts and these organometallic catalysts are removed, blocked or deactivated before the monomeric diisocyanates are separated off.
- 20 2. A process according to claim 1, wherein unsymmetrical diisocyanates used are tolylene 2,4'-diisocyanate, diphenylmethane 2,4'-diisocyanate and/or isophorone diisocyanate.
- 25 3. A process according to claim 1, wherein the unsymmetrical diisocyanate used is diphenylmethane 2,4'-diisocyanate.
4. A process according to claim 1, wherein the metal catalysts are selected from the group consisting of organometallic compounds of the metals of groups IVA, VA, IVB, VB and VIIIB.
- 30 5. A process according to claim 4, wherein the metal catalysts contain ligands.
6. A process according to claim 4, wherein the ligands used are carboxylate anions, alkoxides, enolates, thiolates, mercaptides and alkyl ligands and combinations thereof.
- 35 7. A process according to claim 4, wherein the ligands are used in the form of chelating systems.
- 40 8. A process according to claim 1, wherein the metal catalysts are selected from the group consisting of dimethyltin, dibutyltin and dioctyltin dilaurate, bis(dodecylmercaptide), bis(2-ethylhexylthioglycolate), diacetate, maleate, bist-

hioglycerol; octyltin tris(2-ethylhexylthioglycolate), bis(β -methoxycarbonyl-ethyl)tin dilaurate, tetraisopropyl titanate, tetra-tert-butyl orthotitanate, tetra(2-ethylhexyl)titanium and bis(ethylacetoacetato)titanium diisopropoxide, bismuth(III) tris(2-ethylhexanoate) and bismuth laurate.

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9. A process according to claim 1, wherein the metal catalysts are homogeneous catalysts.
10. A process according to claim 1, wherein the metal catalysts are heterogeneous catalysts.
11. A process according to claim 1, wherein the metal catalysts have been applied to supports.
12. A process according to claim 1, wherein the organometallic catalysts are deactivated by means of Lewis-acid metal deactivators.
13. A process according to claim 1, wherein the organometallic catalysts are deactivated by means of compounds of the general formula (I)

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where R_1 and R_4 are, independently of one another, any organic radicals such as a linear, branched or cyclic alkyl radical, a linear, branched or cyclic alkenyl radical, a linear, branched or cyclic hydroxy, halogen, amino or thioalkyl radical, R_2 and R_3 are each, independently of one another, either nothing or hydrogen, X_1 and X_4 are each, independently of one another, either nothing or oxygen, X_2 and X_3 are Lewis-acid substituents, for example a halogen, O, OH, NH_2 , NO_2 , SH and n is an integer from 1 to 5.

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14. A process according to claim 13, wherein the compounds of the general formula (I) are organic carboxylic acids which are functionalized on the β -carbon atom (C_3) relative to the carbon atom (C_1) of the acid group ($-C(1)OOH$) from the group consisting of β -hydroxycarboxylic acids, β -aminocarboxylic acids, β -ketocarboxylic acids and 1,3-dicarboxylic acids and their esters.
15. A process according to claim 13, wherein the compounds of the general formula (I) are selected from the group consisting of citric acid, malic acid, tartaric acid, acetoacetic acid, 2-chloroacetoacetic acid, benzoylacetic acid, acetonedicarboxylic acid, dehydroacetic acid, 3-oxovaleric acid and malonic acid and also the associated esters in each case.

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16. A prepolymer which contains isocyanate groups and has a content of monomeric diisocyanates of from 0.01 to 0.5% by weight, based on the weight of the prepolymer, and a content of ABA structures of at least 80% and can be prepared according to any of claims 1 to 13.

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17. The use of compounds of the general formula (I) for the deactivation of organometallic catalysts in the preparation of prepolymers containing isocyanate groups.